SEQUENCE LISTING

<110> Jakobovits, Aya
John A.
Donovan, Kathleen A.

<120> USE OF GENETICALLY ENGINEERED ANTIBODIES TO CD38 TO TREAT MULTIPLE MYELOMA

<130> 150.188US2

<140> 09/730,374
<141> 2000-12-05

<150> PCT/US99/12512
<151> 1999-06-04

<150> 60/088,277
<151> 1998-08-05

<160> 5

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 750
<212> DNA
<213> Artificial Sequence

<220>
<223> A nucleotide sequence encoding a single chain
variable region fragment (scFv)

<400> 1
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ctcacagcgc ctgtccataa cctgcacagt ctctggtttc tcattaatta gttatggtgt 120
acactgggtt cgccagtctc caggaaaggg tctggagtgg ctgggagtga tatggagagg 180
tggaagcaca gactacaatg cagctttcat gtccagactg agcatcacca aggacaactc 240
caagagccaa gttttcttta aaatgaacag tctgcaagct gatgacactg ccatatactt 300
ctgtgccaaa accttgatta cgacgggcta tgctatggac tactggggcc aagggaccac 360
ggtcaccgtc tcctcaggtg gaggcggttc aggcggaggt ggctctggcg gtggcggatc 420
ggacatcgag ctcactcagt ctccatcctc cttttctgta tctctaggag acagagtcac 480
cattacttgc aaggcaagtg aggacatata taatcggtta gcctggtatc agcagaaacc 540
aggaaatgct cctaggctct taatatctgg tgcaaccagt ttggaaactg gggttccttc 600
aagattcagt ggcagtggat ctggaaagga ttacactctc agcattacca gtcttcagac 660
tgaagatgtt gctacttatt actgtcaaca gtattggagt actcctacgt tcggtggagg 720
gaccaagctg gaaatcaaac gggcggccgc 750

<210> 2
<211> 241
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide encoded by an open reading frame of
SEQ ID NO:1

<400> 2
Gly Pro Ala Gly His Gly Gln Gly Pro Ala Ala Gly Val Arg Thr Pro
1 5 10 15
Ser Ala Ala Leu Thr Ala Pro Val His Asn Leu His Ser Leu Trp Phe
20 25 30
Leu Ile Asn Leu Trp Cys Thr Leu Gly Ser Pro Val Ser Arg Lys Gly
35 40 45

```
Ser Gly Val Ala Gly Ser Asp Met Glu Arg Trp Lys His Arg Leu Gln
    50                  55                  60
Cys Ser Phe His Val Gln Thr Glu His His Gln Gly Gln Leu Gln Glu
65                  70                  75                  80
Pro Ser Phe Leu Asn Glu Gln Ser Ala Ser His Cys His Ile Leu Leu
                85                  90                  95
Cys Gln Asn Leu Asp Tyr Asp Gly Leu Cys Tyr Gly Leu Leu Gly Pro
            100                 105                 110
Arg Asp His Gly His Arg Leu Leu Arg Trp Arg Arg Phe Arg Arg Arg
        115                 120                 125
Trp Leu Trp Arg Trp Arg Ile Gly His Arg Ala His Ser Val Ser Ile
    130                 135                 140
Leu Leu Phe Cys Ile Ser Arg Arg Gln Ser His His Tyr Leu Gln Gly
145                 150                 155                 160
Lys Gly His Ile Ser Val Ser Leu Val Ser Ala Glu Thr Arg Lys Cys
                165                 170                 175
Ser Ala Leu Asn Ile Trp Cys Asn Gln Phe Gly Asn Trp Gly Ser Phe
            180                 185                 190
Lys Ile Gln Trp Gln Trp Ile Trp Lys Gly Leu His Ser Gln His Tyr
        195                 200                 205
Gln Ser Ser Asp Arg Cys Cys Tyr Leu Leu Leu Ser Thr Val Leu Glu
    210                 215                 220
Tyr Ser Tyr Val Arg Trp Arg Asp Gln Ala Gly Asn Gln Thr Gly Gly
225                 230                 235                 240
Arg
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<210> 3
<211> 249
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide encoded by an open reading frame of
SEQ ID NO:1

<400> 3

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Ala Gln Pro Ala Met Ala Lys Val Gln Leu Gln Glu Ser Gly Pro Ser
 1               5                  10                  15
Leu Val Gln Pro Ser Gln Arg Leu Ser Ile Thr Cys Thr Val Ser Gly
            20                  25                  30
Phe Ser Leu Ile Ser Tyr Gly Val His Trp Val Arg Gln Ser Pro Gly
        35                  40                  45
Lys Gly Leu Glu Trp Leu Gly Val Ile Trp Arg Gly Gly Ser Thr Asp
    50                  55                  60
Tyr Asn Ala Ala Phe Met Ser Arg Leu Ser Ile Thr Lys Asp Asn Ser
65                  70                  75                  80
Lys Ser Gln Val Phe Phe Lys Met Asn Ser Leu Gln Ala Asp Asp Thr
                85                  90                  95
Ala Ile Tyr Phe Cys Ala Lys Thr Leu Ile Thr Thr Gly Tyr Ala Met
            100                 105                 110
Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly
        115                 120                 125
Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile Glu Leu
    130                 135                 140
Thr Gln Ser Pro Ser Ser Phe Ser Val Ser Leu Gly Asp Arg Val Thr
145                 150                 155                 160
Ile Thr Cys Lys Ala Ser Glu Asp Ile Tyr Asn Arg Leu Ala Trp Tyr
                165                 170                 175
Gln Gln Lys Pro Gly Asn Ala Pro Arg Leu Leu Ile Ser Gly Ala Thr
            180                 185                 190
```

```
Ser Leu Glu Thr Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly
        195                 200                 205
Lys Asp Tyr Thr Leu Ser Ile Thr Ser Leu Gln Thr Glu Asp Val Ala
    210                 215                 220
Thr Tyr Tyr Cys Gln Gln Tyr Trp Ser Thr Pro Thr Phe Gly Gly Gly
225                 230                 235                 240
Thr Lys Leu Glu Ile Lys Arg Ala Ala
                245
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<210> 4
<211> 239
<212> PRT
<213> Artificial Sequence

<220>
<223> A polypeptide encoded by an open reading frame of SEQ ID NO:1

<400> 4

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 1               5                  10                  15
Cys Ser Pro His Ser Ala Cys Pro Pro Ala Gln Ser Leu Val Ser His
            20                  25                  30
Leu Val Met Val Tyr Thr Gly Phe Ala Ser Leu Gln Glu Arg Val Trp
        35                  40                  45
Ser Gly Trp Glu Tyr Gly Glu Val Glu Ala Gln Thr Thr Met Gln Leu
    50                  55                  60
Ser Cys Pro Asp Ala Ser Pro Arg Thr Thr Pro Arg Ala Lys Phe Ser
65                  70                  75                  80
Leu Lys Thr Val Cys Lys Leu Met Thr Leu Pro Tyr Thr Ser Val Pro
                85                  90                  95
Lys Pro Leu Arg Arg Ala Met Leu Trp Thr Thr Gly Ala Lys Gly Pro
            100                 105                 110
Arg Ser Pro Ser Pro Gln Val Glu Ala Val Gln Ala Glu Val Ala Leu
        115                 120                 125
Ala Val Ala Asp Arg Thr Ser Ser Ser Leu Ser Leu His Pro Pro Phe
    130                 135                 140
Leu Tyr Leu Glu Thr Glu Ser Pro Leu Leu Ala Arg Gln Val Arg Thr
145                 150                 155                 160
Tyr Ile Ile Gly Pro Gly Ile Ser Arg Asn Gln Glu Met Leu Leu Gly
                165                 170                 175
Ser Tyr Leu Val Gln Pro Val Trp Lys Leu Gly Phe Leu Gln Asp Ser
            180                 185                 190
Val Ala Val Asp Leu Glu Arg Ile Thr Leu Ser Ala Leu Pro Val Phe
        195                 200                 205
Arg Leu Lys Met Leu Leu Leu Ile Thr Val Asn Ser Ile Gly Val Leu
    210                 215                 220
Leu Arg Ser Val Glu Gly Pro Ser Trp Lys Ser Asn Gly Arg Pro
225                 230                 235
```

<210> 5
<211> 750
<212> DNA
<213> Artificial Sequence

<220>
<223> A nucleotide sequence complementary to SEQ ID NO:1
(presented in 5'-3' orientation)

<400> 5

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tgttgacagt aataagtagc aacatcttca gtctgaagac tggtaatgct gagagtgtaa     120
tcctttccag atccactgcc actgaatctt gaaggaaccc cagtttccaa actggttgca     180
ccagatatta agagcctagg agcatttcct ggtttctgct gataccaggc taaccgatta     240
tatatgtcct cacttgcctt gcaagtaatg gtgactctgt ctcctagaga tacagaaaag     300
gaggatggag actgagtgag ctcgatgtcc gatccgccac cgccagagcc acctccgcct     360
gaaccgcctc cacctgagga gacggtgacc gtggtccctt ggccccagta gtccatagca     420
tagcccgtcg taatcaaggt tttggcacag aagtatatgg cagtgtcatc agcttgcaga     480
ctgttcattt taaagaaaac ttggctcttg gagttgtcct tggtgatgct cagtctggac     540
atgaaagctg cattgtagtc tgtgcttcca cctctccata tcactcccag ccactccaga     600
ccctttcctg gagactggcg aacccagtgt acaccataac taattaatga gaaaccagag     660
actgtgcagg ttatggacag gcgctgtgag ggctgcacta ggctaggtcc tgactcctgc     720
agctggacct tggccatggc cggctgggcc                                      750
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